a second mirror shell for receiving a second ring aperture section of said light and irradiating a second planar ring section of said plane with a second irradiance,

wherein said first and second mirror shells are rotationally symmetrical and concentrically arranged around a common axis of rotation,

wherein said first and second ring aperture sections do not overlap with one another,

wherein said first planar ring section substantially abuts said second planar ring section, and

wherein said first irradiance is approximately equal to said second irradiance.

27. (New) The collector of claim 26, wherein said first and second mirror shells have dimensions that are different from one another in a direction of said axis of rotation.

28. (New) The collector of claim 26,

wherein said first mirror shell is an inner mirror shell and said second mirror shell is an outer mirror shell,

wherein said first mirror shell has a mean value of an initial point and an end point with regard to said axis of rotation that indicates a position of said first mirror shell,

wherein said second mirror shell has a mean value of an initial point and an end point with regard to said axis of rotation that indicates a position of said second mirror shell, and

wherein said position of said outer mirror shell is further distant from said plane than said position of said inner mirror shell.

29. (New) The collector of claim 26, wherein said collector has:

a first quotient of (i) a first ratio of a radial dimension of said first planar ring section to an angular extension of said first ring aperture section and (ii) a second ratio of a radial dimension of said second planar ring section to an angular extent of said second ring aperture section; and

a second quotient of (i) a first radiant intensity, which is reduced by a loss of reflectivity of said first mirror shell, which flows into said first ring aperture section, and of (ii) a

second radiant intensity, which is reduced by a loss of reflectivity of said second mirror shell, which flows into said second ring aperture section,

wherein said first quotient is substantially equal to said second quotient.

30. (New) The collector of claim 26,

wherein said light source isotropically irradiates light, and

wherein said collector has:

a first ratio of a radial dimension of said first planar ring section to an angular extent of said first ring aperture section; and

a second ratio of a radial dimension of said second planar ring section to an angular extent of said second ring aperture section, and

wherein said first ratio is substantially equal to said second ratio.

31. (New) The collector of claim 26,

wherein said first and second planar ring sections have radial dimensions of equal size,

wherein said first and second planar ring sections are concentric,

wherein said first planar ring section is an inner planar ring section and said second planar ring section is an outer planar ring section,

wherein said first mirror shell has a dimension in a direction of said axis of rotation,

wherein said second shell mirror has a second dimension in said direction of said axis of rotation, and

wherein said dimension of said first mirror shell is larger than said dimension of said second mirror shell.

32. (New) The collector of claim 26, wherein said first and second mirror shells are each a ring-shaped segment of an aspherical object.

33. (New) The collector of claim 32, wherein said first and second mirror shells are each a ring-shaped segment of a form selected from the group consisting of an ellipsoid, a paraboloid and a hyperboloid.

34. (New) The collector of claim 26, wherein said first mirror shell comprises a first segment with a first optical surface and a second segment with a second optical surface.

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35. (New) The collector of claim 34, wherein said first segment is from a hyperboloid and said second segment is from an ellipsoid.

36. (New) The collector of claim 34, wherein said first segment is from a hyperboloid and said second segment is from a paraboloid.

37. (New) The collector of claim 26, wherein said first and second ring aperture segments are separated by a gap.

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38. (New) The collector of claim 26, further comprising a central aperture obscuration with a numerical aperture ≤ 0.30.

39. (New) The collector of claim 38, wherein said central aperture obscuration comprises a diaphragm concentric to, and interior to, said first mirror shell.

40. (New) The collector of claim 26, wherein said collector has an object-side maximum numerical aperture $NA_{max} \geq 0.4$.

41. (New) The collector of claim 26, wherein said first and second mirror shells are two of a plurality of mirror shells comprising at least three mirror shells.

42. (New) The collector of claim 26, wherein said light source emits rays that impinge with an angle of incidence of less than 20° to surface tangents of said first and second mirror shells.

43. (New) An illumination system, comprising the collector of claim 26.

44. (New) The illumination system of claim 43, further comprising an optical element having raster elements.

45. (New) The illumination system of claim 43, wherein said raster elements are located within said first and second planar ring sections.

46. (New) The illumination system of claim 44,
wherein said optical element is a first optical element, and
wherein said illumination system further comprises a second optical element for imaging.

47. (New) The illumination system of claim 44,
wherein said optical element is a first optical element, and
wherein said illumination system further comprises a second optical element for field shaping.

48. (New) The illumination system of claim 43,
wherein said plane is a first plane, and
wherein said illumination system has a second plane conjugated to said light source between said collector and said first plane, in which an intermediate image of said light source is formed.

49. (New) The illumination system of claim 48, further comprising a diaphragm in or near said intermediate image, wherein said diaphragm separates a space containing said light source and said collector from a portion of said illumination system downstream of said diaphragm.

50. (New) An EUV projection exposure system comprising:
the illumination system of claim 43;
a mask, which is illuminated by said illumination system; and
a projection objective for imaging said mask on a light-sensitive object.

51. (New) A process for producing a microelectronic device, comprising using the EUV projection exposure system of claim 50.